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AMENDMENTS TO THE CLAIMS:

1.-6 (Cancelled)

7. (Previously Presented) A method for detecting a device which causes a bit reversal when the device is in trouble, comprising:

demultiplexing a first serial signal into D(1)-D(N) signals,

inputting the D(1)-D(N) signals into devices E(1)-E(N-1) and a channel marking device E(N) respectively,

outputting D'(1)-D'(N-1) signals from the devices E(1)-E(N-1) and a D'(N) signal from the channel marking device E(N), wherein the channel marking device E(N) outputs the D'(N) signal by changing the D(N) signal by a certain changing method,

multiplexing the D'(1)-D'(N) signals into a second serial signal,

finding the D'(N) signal in the second serial signal which has a bit reversal,

detecting a device E(X) which causes the bit reversal based on bit positions of a D'(X) signal and the D'(N) signal, wherein an order of bits between the first and the second serial signals is maintained.

8. (Currently Amended) The method for detecting a device according to ~~claim 1~~ claim 7, wherein the certain changing method is all bits reversal.

9. (Previously Presented) An apparatus for detecting a device which causes a bit reversal when the device is in trouble, comprising:

means for demultiplexing a first serial signal into D(1)-D(N) signals,

means for inputting the D(1)-D(N) signals into devices E(1)-E(N-1) and a channel marking device E(N) respectively,

means for outputting $D'(1)$ - $D'(N-1)$ signals from the devices $E(1)$ - $E(N-1)$ and a $D'(N)$ signal from the channel marking device $E(N)$, wherein the channel marking device $E(N)$ outputs a $D'(N)$ signal by changing the $D(N)$ signal by a predetermined changing method,

means for multiplexing the $D'(1)$ - $D'(N)$ signals into a second serial signal,

means for finding the $D'(N)$ signal in the second serial signal which has a bit reversal,

means for detecting a device $E(X)$ which causes the bit reversal based on bit positions of a $D'(X)$ signal and the $D'(N)$ signal, wherein an order of bits between the first and the second serial signals is maintained.

10. (Currently Amended) The apparatus for detecting a device according to ~~claim 3~~ claim 9, wherein the predetermined changing method is all bits reversal.

11. (New) An apparatus for detecting a device which causes a bit reversal when the device is in trouble comprising:

a signal distribution unit demultiplexing a first signal into $D(1)$ - $D(N)$ signals;

devices $E(1)$ - $E(N-1)$ which receive the $D(1)$ - $D(N)$ signals respectively and output $D'(1)$ - $D'(N)$ signals respectively;

a channel marking device $E(N)$ which receives the $D(N)$ signal and outputs $D'(N)$ signal by changing the $D(N)$ signal by a predetermined changing method;

a multiplexing unit multiplexing the $D'(1)$ - $D'(N)$ signals into a second serial signal;

a detecting unit which finds the $D'(N)$ signal in the second serial signal which has a bit reversal and detects a device $E(X)$ which causes the bit reversal based on bit position of a $D'(X)$ signal and the $D'(N)$ signal, wherein an order of bits between the first and the second serial signals is maintained.